Vs Va Vsc Ve
Label Voltages

Labels on diagram:
- Y-Buffer
- moIP Module Camera/Mic
- X-MAIN
- SMPS
- Y-MAIN
- LOGIC/Buffer combo BOARD (located behind Stand)
- MAIN
- X-Buffer
- Speaker R
- Speaker L
- Wi-Fi

SERVICE BULLETINS

5/ 15/12 ASC20120515001 Capturing emergency Log Info -Download for SEA Info
4/2/12 ASC20120402001 : Voice Command issue … Fix: Update to latest firmware
Quick Parts: Verify before Ordering

Parts Category	Parts No	Short Description
PCB	BN44-00514A	SMPS
PCB	BN94-04967G	Main PCB
PCB	BN96-21431C	RF module PCB
PCB	BN96-21750C	Function PCB
PCB	BN96-22017A	Logic Main PCB
PCB	BN96-22018A	Buffer E
PCB	BN96-22019A	Buffer G
PCB	BN96-22020A	X Main
PCB	BN96-22021A	Y Main
PCB	BN96-22022A	Buffer X
PCB	BN96-22023A	Buffer Y Up
PCB	BN96-22024A	Buffer Y Down
Display	BN96-22040A	Panel
Cosmetic	BN96-16787A	Stand Base
Cosmetic	BN96-22152A	Front Cover
Cosmetic	BN96-22155A	Rear Cover
Cosmetic	BN96-22781A	Stand Guide
Component	3903-000552	Power Cord
Component	AA59-00626A	Remote
Component	BN96-21672B	Speaker
Component	BN96-22667A	camera module
Component	BN96-22728C	LVDS Cable
Accessory	4301-000103	Battery
Accessory	BN63-02368B	Cleaning Cloth
Accessory	BN81-07013A	3D Glasses

HELP : 888-751-4086; 866-894-0637 FE)
GSPN
http://gspn3.samsungcsportal.com
PLUS ONE
http://my.plus1solutions.net/clientPortals/samsung

HOT TIPS
- Check for continuous Firmware upgrade for this model series…

-Motion Control command problems are related to Firmware upgrade and room environments. Check room environment and user operation understanding and conditions.

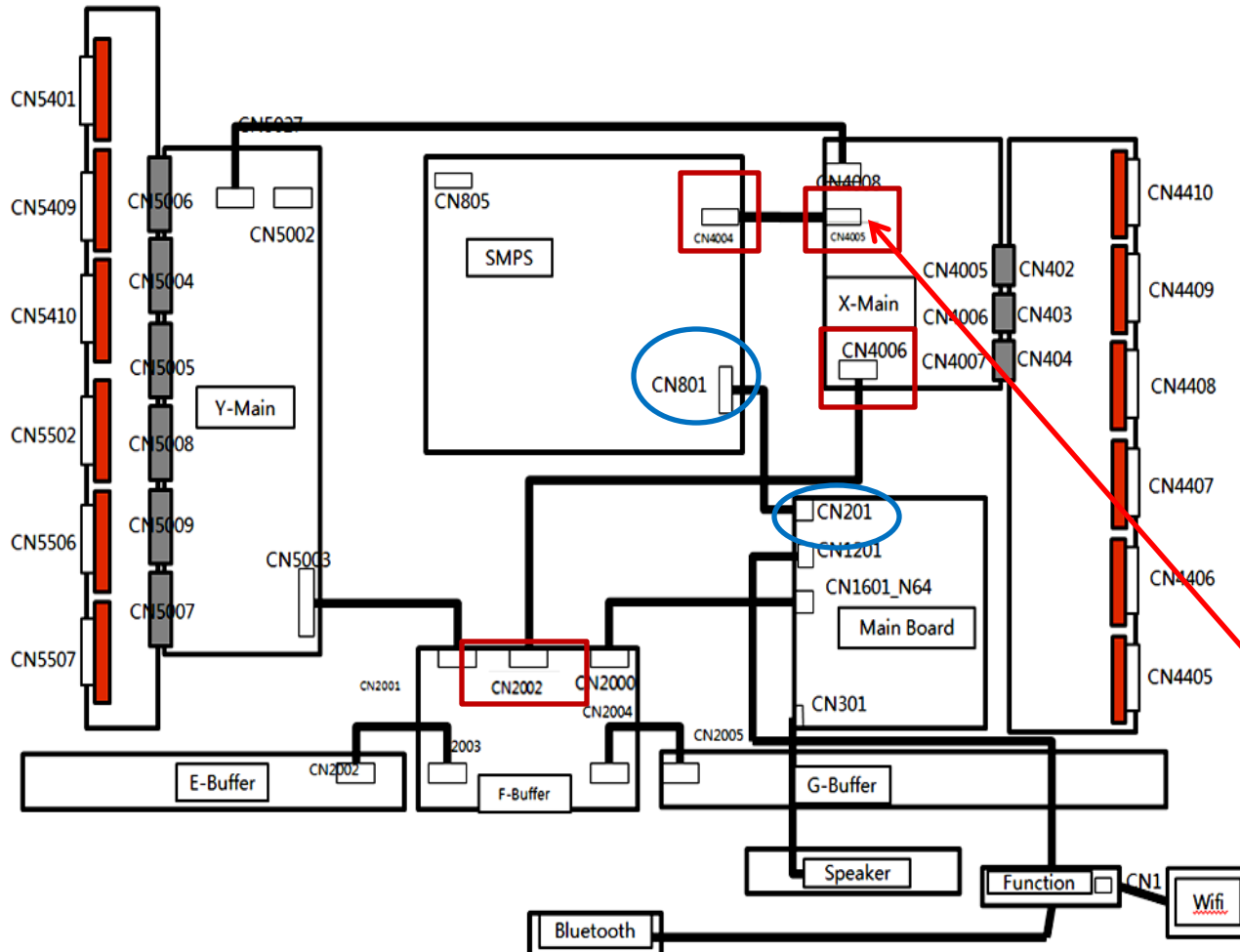## FIRMWARE

2012 PDP Echo-P Firmware (1018.2) 5/25/12

Avail on GSPN or Samsung,Com

Always check for latest updates

CN801(SMPS) - CN201(MAIN)

Pin No.	Signal
1	PS_ON
2	STBY
3	GND
4	15V
5	GND
6	GND
7	D5.3V
8	D5.3V
9	GND
10	15V
11	15V
12	D5.3V

CN 4005 X-Board	Signal
8	DGND
9	VS_ON
10	VS_CON
11	PS_ON
12	DGND
13	NC

1. **5V STBY   SMPS to Main**
2. **PS_ON   Main to SMPS (all Low Voltages on)**
3. **PS_ON   SMPS thru X-Board to Logic Board**
4. **VS_ON   Logic Board thru X-Board to SMPS**
   (VS & VA voltages turned on)

Activating Power & Logic Board Test Patterns without Main Board:

1. Remove Power Cord to Panel
2. Short Highest 2 Pin #s on Logic Board Test Jig (Can be 4 Pin or 6 Pin)
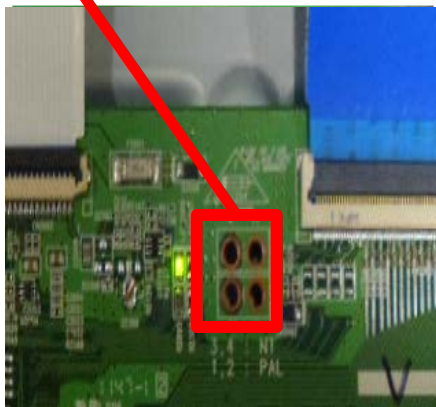
3. Remove Power Connector at Main Board (keeping connection to SMPS)
4. Short "Power On" Pin to Circuit Ground on Power Connector to SMPS.
5. Connect Power Cord to Panel

2012 PN60E8000 "Vital Signs" (Vs Va Vsc Ve)

60ES (NTSC/PAL)			
Vs	Va	Vsc	Ve
219	55	−200	114

1. Record Panel Label
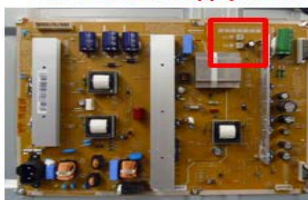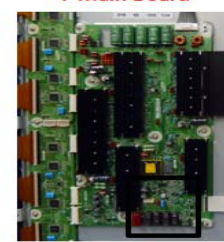2. Check & Adjust VS
3. Check & Adjust VA

SMPS Power Supply Board

4. Check & Adjust Vsc (Vscan)

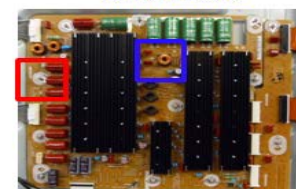**Y-Main Board**

5. Check & Adjust VE

X-Main Board

Power Supply Trouble Shooting Notes:

2010/2011/2012 models

Will not be run with the "X" or "Y" main disconnected. The SMPS will shut down immediately. However if a meter is first connected to the test point when power is applied it will read the correct voltage briefly before shutting down.(You have enough time to check key voltages)

CAUTION: Do not reconnect any connectors to SMPS or Y/X Boards until power has been turned off long enough for Vs to drop below 10V or damage will occur to X or Y Boards. .

Over Current Protection

For the SMPS Power Supply... If a short circuit occurs on either the VS or VA voltage lines, the SMPS stops operating, but should not fail. When the short circuit is removed from the source line, the Power Supply will operate normally again. **Many SMPS Supplies are replaced needlessly!**

. **VITAL SIGNS** check **Vs, Va, Vsc & Ve**

When troubleshooting, It's very important to first check **Vs, Va, Vsc & Ve**
If **Vs** is missing (0V), disconnect power and check for short. Use ohm meter to measure resistance while disconnecting Y-Board & X-Board supply feeds one at a time.
Turn Power On and Test SMPS with short connector removed for correct Vs voltage verification. (It may only come up briefly but to full level). Again be careful not to reconnect Power Connectors until Vs falls below 10V.

If **Va** is low or missing, disconnect Supply Feed to Address Boards and Check to see if SMPS Supply is restored. (Note Va feed normally passes through the Y-Drive to the Address Boards (Logic Buffer Boards).

If **Vsc** is low or missing and Vs was OK, the failure is with the **Y-Board** since the Y-Board generate the Vsc voltage from the Vs supplied by the SMPS.
If **Ve** is low or missing and Vs is OK, the failure is with the **X-Board** since the Ve is generated by the X-Board from the Vs supplied by the SMPS. Please note in some rare cases the Ve may be generated by the Y-Board feed to the X-Board.)   **Other SMPS Voltages:**
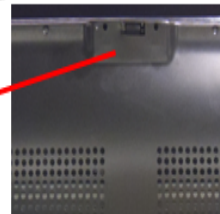Check Low Voltage feeds to the Main Board and other supplied Assemblies.
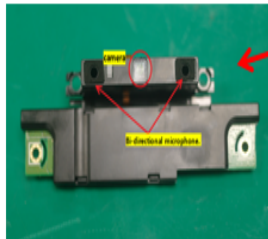
MoIP Module Troubleshooting
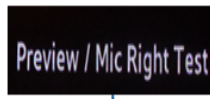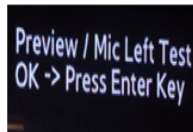

Troubleshooting - Camera/Microphone Module

1. Enter Test Mode:
   - TV Power On
   - Using Standard Remote Control
   - Press: Mute, 569, Exit
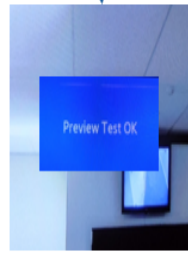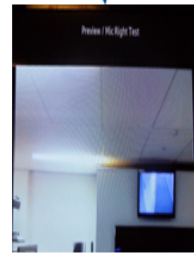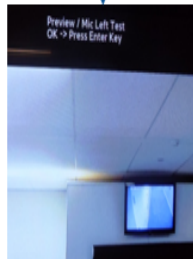
2. Speak into (Left) Mic Verify its OK with sound from speakers

3. Press Enter

4. Speak into (Right) Mic Verify its OK with sound from speakers.

5. Press Exit
   "Preview Test OK" only Indicates test completed. Not no error exists.

Camera Vertical Height Adjust

Preview / Mic Left Test OK -> Press Enter Key

Preview / Mic Right Test

Preview Test OK

Camera & **Left** Mic Activated

Camera & **Right** Mic Activated

Troubleshooting - Camera/Microphone Module

1. Menu / System
2. Verify "Voice and Gesture Control" is Available.
3. Try making selection
4. If it is Grayed out the moIP Module is not active.
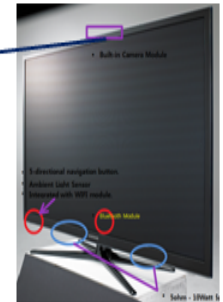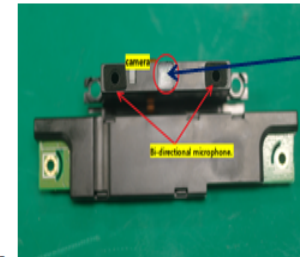
NORMAL

ERROR

ERROR

Voice & Gesture Control Normal Screen.

Voice & Gesture Control Grayed Out-Not Available

Voice & Gesture Control "This Function isn't available"

Function Control Troubleshooting

- ✓ Standby **A3.3V** on Function Connector, Pin 3.

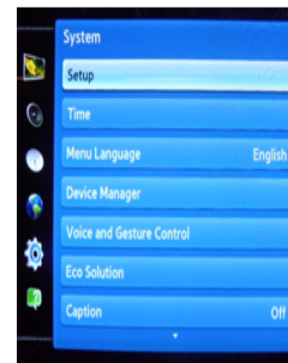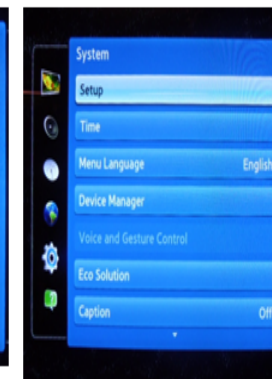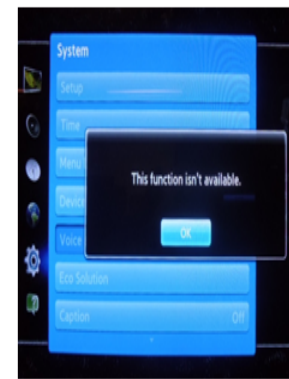- ✓ All Pins should read **3.3V** before commands.

- ✓ **Press**, at Key 1, Pin 6. **3.3V to 0.0V DC**

- ✓ **Left, Right, Up, Down** at Key 2, Pin 7. Check **specific voltages** on chart.

5 Directional Function Control

UNEH4000 Sample

| Press | Left | Right | Up | Down |

CN702 (FUNCTION)

1	IR	5	MSDA
2	GND	6	KEY1
3	A3.3V	7	KEY2
4	MSCL	8	GND

All Functions can be Tested in Standby Mode

(Standby Voltage)

Function menu

TV Controller
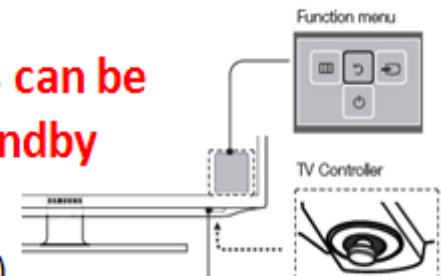
Command	PIN	Signal	DC Voltage/Notes
IR	1	IR	3.3V to 2.5V DC with any Remote Control Commands
Press	6	Key 1	3.3V to 0.0V DC
Left	7	Key 2	3.3V to 1.6V DC
Right	7	Key 2	3.3V to 2.5V DC
Up	7	Key 2	3.3V to 0.0V DC
Down	7	Key 2	3.3V to 0.8V DC

Actual IR Signal

4V P-P Data

TROUBLESHOOTING VIDEO PROBLEMS

1. **Verify Video Operation:**
   A. **Customer Picture Test**
   B. **"Display"**
   C. If display & Customer Picture Test are OK source is suspected
   D. Substitute with known good source and cabling.

2. Using Test Patterns in Service Mode:

Customer Remote
   A. Power off
   B. Mute, 182, Power

Factory Remote:
   A. Power On
   B. Info, Test

3. Verify Echo-P Patterns
4. Verify Logic Patterns

If Logic Patterns are OK and Echo-P are noisy, replace the defective LVDS Cable or Main Board.

If Echo-P and Logic Patterns are both noisy check for specific on screen noise error to determine failure. (next slide)

2012 PDP Signal Path for Troubleshooting

Echo-P

Main Board
E C H O - P
Echo-P
E C H O - A
Inputs
A/V
HDMI
USB
Etc.

LVDS CABLE

Logic Board

X MAIN

X BUFF

Logic Buffer Boards

Y MAIN

Y BUFF

Boot Logo   OSD   Customer Picture Test
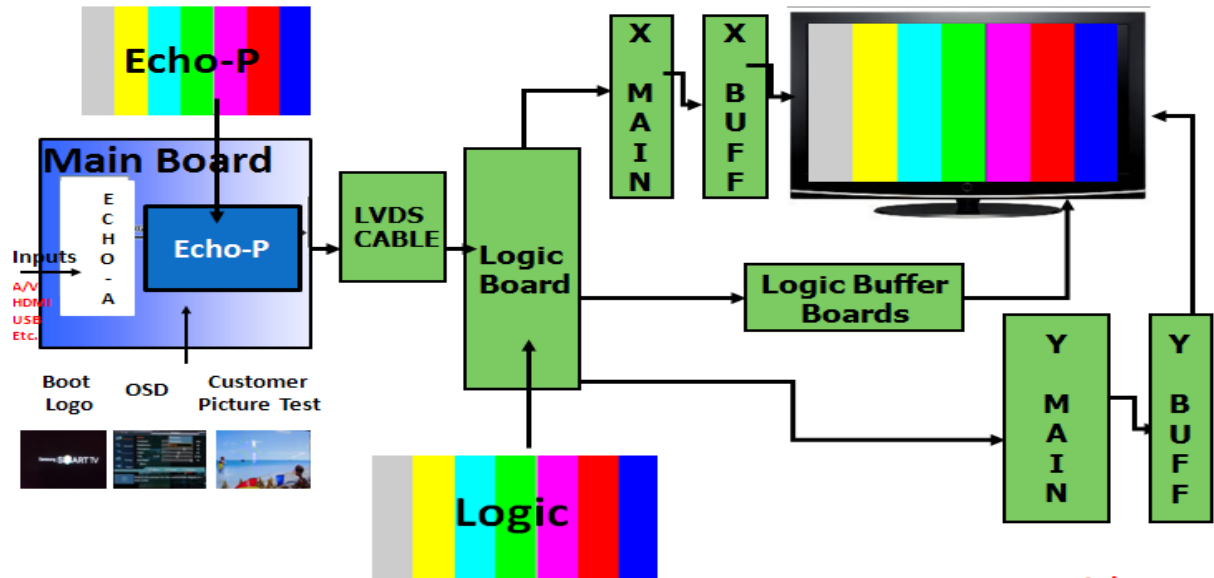
Logic

(PNXXE8000 Sample)

LOGIC Pattern Sel	13
LOGIC Level Sel	255
EchoP Pattern Sel	0
Echo-FP Pre Test Pattern	0
Echo-FP Post Test Pattern	0

Main Board Patterns Test
Select: EchoP Pattern Sel

LOGIC Pattern Sel	13
LOGIC Level Sel	255
EchoP Pattern Sel	0

Logic Board Patterns Test
Select: LOGIC Pattern Sel

ON SCREEN FAILURE EXAMPLES:

"Y" Board Failure Examples

Notice how each error contains a horizontal line

These examples show Y board errors, because the Y electrodes run horizontally, errors can often be seen across the screen.
2010 & 2011 Y board errors will be detected by the Logic Board and often create a High Voltage Power Down ("VS ON" to Off) condition.
When failure exists on either the Y-Board or the Y-Buffer Boards, be sure to replace both assemblies. A failure on either Board can create a failure on both assemblies.

Y Buffer Boards Failures

Y-Buffer Failures will often show blown Scan ICs & will create either Panel Power Down
Or
On Screen Errors across the screen as Shown in examples

Upper Y Buffer Error
Lower Y Buffer Error

Two Output Lines on Scan IC Are open or connector to Panel is open.
Bottom 2 Scan ICs affected. (12 ICs total = 1/6 of video)

"X" board Failure Examples

- In this left screen example, the sustain signal from the X board is low or missing.
- For 2009 Models and Older: Verify operation of the X board by disconnecting the power supply cable to the X board. If the other boards are working the picture will be dark.
- If the X-Board Power or Y-Board Power is removed, however, on 2010 or 2011 Models, an error will be detected and the VS Supply from the SMPS will be turned off by the Logic Board. A Black Screen (on right) will occur.

"X" board Failure Examples

4:3 pillar bar shadow   4:3 pillar bar shadow

- In this example the Ve initialize signal is low or missing creating image retention. No Erasing.
- Troubleshoot the X Board by verifying that the Ve Voltage is correct with the label on the Panel.

Logic Board Failure Examples

Screen vertical Noise Errors usually in Multiple Locations
The examples show the panel illuminated but displays with incorrect noisy video.

Logic Buffer Board Failure Examples

Normal Video Screen with added Vertical Black, Red, Green, or Blue Bar Errors
The examples show the panel illuminated, display is Normal except for area of Logic Buffer Board Failure.

Main Board Failure Symptoms

- Main Board errors are similar to logic errors but the problem can be on a single source such as the tuner.
- If the Menu also shows the defect the main board is suspected

PDP Panel Troubleshooting

Horizontal Error
Magnified View

Plasma Panel Failure Examples

- Plasma Panel failure can usually be identified by observation. Single sub pixel columns or rows that are black or white always are panel failures. Other lines or lines that vary with content are almost never panel failures. Individual pixel errors are almost always panel related.

ALIGNMENTS:

1. **Check/Adj. VS, VA, VE, & VSC** according to Panel Label and Diffusion test. (**see bulletins** for any special notes before making changes)

DIFFUSION TEST/ADJ. (cell miss-firing)
- **Allow the unit to warm up 15 to 20 minutes**
- **Access the Burn Protect Sig. Pattern in Cust. Menu.**
- **Adjust the Vs volts until screen errors are gone in both dark and bright areas.**
- **Adjust the Vs volts within +/- 10V on the panel label.**
- **NOTE: Diffusion may appear with aging panels.**
  New panels with Diffusion consult bulletins and/or report problem.

2. **Check/Set Option Bytes:**

Factory Reset	
Type	60ESCrD
Local Set	US
Basic Model	PE8000
SVC Model	8000
TUNER	ECHO_CV
Front Color	P-W-D-Gy